

## Claims

1. A flexible membrane for a resistive touch screen display, said flexible membrane comprising:

5            a glass laminate, wherein said glass laminate consists of:  
an ultra-thin glass layer;  
a polymer layer; and  
an optical adhesive between said ultra-thin glass layer and said polymer layer, said optical adhesive holding said ultra-thin glass layer to said  
10            polymer layer.

2. The membrane of claim 1, wherein said glass layer is smaller than said polymer layer

15            3. The membrane of claim 2, wherein said optical adhesive is allowed to build-up about the edges of said glass layer.

20            4. The membrane of claim 1, wherein said glass layer is less than 0.5 mm thick.

25            5. The membrane of claim 1, wherein said polymer layer is comprised of polyester.

6. The membrane of claim 1, wherein said polymer layer is approximately 0.175 mm thick.

25            7. The membrane of claim 5, wherein said polymer is transparent.

8. The membrane of claim 5, wherein said polymer is opaque.

30            9. The membrane of claim 1, wherein said optical adhesive is formed in a uniform thickness in the area between said glass layer and said polymer layer.

35            10. The membrane of claim 9, wherein the formed thickness of said optical adhesive is between 0.025 and 0.05 mm.

11. In a touch screen having a flexible outer membrane with a first conducting surface, a backing surface with a second conductive surface, and sensors to detect contact between the first conducting surface and the second conducting surface, the improvement comprising:

5                   the flexible outer membrane, wherein the flexible outer layer consists of  
                      an ultra-thin glass layer;  
                      a polymer layer; and  
                      an optical adhesive between said ultra-thin glass layer and said polymer  
                      layer, said optical adhesive holding said ultra-thin glass layer to said  
10                   polymer layer.

12. The touch screen of claim 11 wherein said glass layer is smaller than said polymer layer.

15                   13. The touch screen of claim 12 wherein said optical adhesive is allowed to build up about the edges of said glass layer.

14. The touch screen of claim 11, wherein said glass layer is less than 0.5 mm thick.

20                   15. The touch screen of claim 11, wherein said polymer layer is comprised of polyester.

16. The touch screen of claim 11, wherein said polymer layer is approximately 0.175 mm thick

25                   17. The touch screen of claim 15, wherein said polymer is transparent.

18. The touch screen of claim 15, wherein said polymer is opaque.

30                   19. The touch screen of claim 11, wherein said optical adhesive is formed in a uniform thickness in the area between said glass layer and said polymer layer.

20. The touch screen of claim 19, wherein the formed thickness of said optical adhesive is between 0.025 and 0.05 mm.

21. A resistive touch screen display, said display comprising:  
a flexible membrane, wherein said flexible membrane consists of:  
an ultra-thin glass layer;  
a polymer layer, said polymer layer being larger than said glass  
layer and said polymer layer extending beyond the periphery  
of said glass layer; and  
an optical adhesive between said ultra-thin glass layer and said  
polymer layer, said optical adhesive holding said ultra-thin glass  
layer to said polymer layer;

10 a backing surface;  
a pressure sensitive adhesive affixed between the periphery of said  
polyester layer and said backing surface;  
an elastic tensioner affixed between the periphery of said polyester layer  
and said backing surface, said elastic tensioner being adjacent to  
15 said pressure sensitive adhesive;  
a first conductive layer affixed to said polyester layer  
a second conductive layer affixed to said backing surface; and  
sensors used to detect where said first conductive layer contacts said  
second conductive layer.

20 22. The touch screen of claim 21, wherein said glass layer is less than 0.5 mm thick.

23. The touch screen of claim 21, wherein said polymer layer is comprised of  
polyester.

25 24. The touch screen of claim 21, wherein said polymer layer is approximately 0.175  
mm thick

26. The touch screen of claim 23, wherein said polymer is transparent.

30 27. The touch screen of claim 23, wherein said polymer is opaque.

35 28. The touch screen of claim 21, wherein said optical adhesive is formed in a  
uniform thickness in the area between said glass layer and said polymer layer.

28. The touch screen of claim 27, wherein the formed thickness of said optical adhesive is between 0.025 and 0.05 mm.

29. The touch screen of claim 21, wherein said optical adhesive is allowed to build up about the outer edge of said glass layer.

30. The touch screen of claim 21, wherein said elastic tensioner preferably comprises a silicon rubber.

10 31. The touch screen of claim 21, wherein said touch screen further comprises an area insulator layer between said polymer layer and said pressure sensitive adhesive.

15 32. The touch screen of claim 31, wherein said area insulator comprises an ultraviolet ink film.

33. A process for the creation of a flexible laminate membrane for a resistive touch screen, the flexible laminate membrane having a glass layer and a polyester layer, the process comprising the steps of:

20 applying an optical adhesive to said glass layer;

affixing a polyester layer over said optical adhesive;

rolling said optical polyester layer from the center of said polyester layer outwards to remove excess optical adhesive and air bubbles; and

pressing said polyester layer, glass layer and optical adhesive combination in a high pressure press to ensure a uniform level of optical adhesive.

25 34. The process of claim 33, wherein said pressing involves more than 5 tonnes of pressure.

35. The process of claim 33, said process further comprising placing an absorbent medium over said glass layer during said pressing to absorb excess optical adhesive.

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